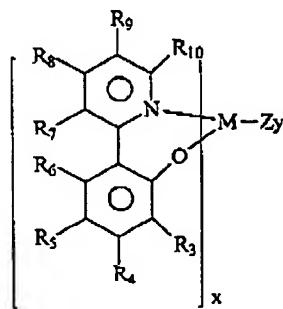


Appl. No. 10/626,730
 Amdt. Dated Sept. 29, 2005
 Reply to Office Action of June 29, 2005

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled)
2. (Cancelled)
3. (Currently amended) The A device of claim 1 comprising,
an anode;
a cathode;
a first organic layer disposed between the anode and the cathode, wherein the first
organic layer produces phosphorescent emission when a voltage is applied between the anode
and the cathode; and
an organic enhancement layer disposed between the first organic layer and the
cathode, wherein the organic enhancement layer is in physical contact with the first organic
layer, and wherein the organic enhancement layer comprises a material of Formula V having
the structure:



V

wherein

M is a metal;

R₃-R₁₀ are substituents, each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF₃, C_nF_{2n+1}, perfluoroalkyl, trifluorovinyl, CO₂R₁, C(O)R₁, NR₁R₂, NO₂, OR₁, halo, aryl, heteroaryl, substituted aryl, substituted

Appl. No. 10/626,730
Amdt. Dated Sept. 29, 2005
Reply to Office Action of June 29, 2005

heteroaryl or a heterocyclic group, wherein each of R₁ and R₂ is independently selected from the group consisting of hydrogen, alkyl, alkylaryl and aryl;

additionally or alternatively, any one or more of R₇ and R₈, R₈ and R₉, or R₉ and R₁₀, together form independently a fused aromatic ring;

each Z may be the same or different, and is an ancillary ligand;

x is a value from 1 to the maximum number of ligands that may be attached to the metal; and

x+y is less than or equal to the maximum number of ligands that may be attached to the metal.

4. (Original) The device of claim 3, wherein y is zero and x is the maximum number of ligands that may be attached to the metal M.

5. (Original) The device of claim 3, wherein M is selected from the group consisting of aluminum, gallium, magnesium, zinc, copper and lead.

6. (Original) The device of claim 5, wherein M is aluminum.

7. (Original) The device of claim 6, wherein y is zero.

8. (Original) The device of claim 6, wherein R₃-R₁₀ are each hydrogen.

9. (Cancelled)

10. (Cancelled)

11. (Cancelled)

12. (Currently amended) The A device of claim 1 comprising

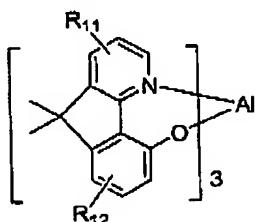
an anode;

a cathode;

a first organic layer disposed between the anode and the cathode, wherein the first organic layer produces phosphorescent emission when a voltage is applied between the anode and the cathode; and

Appl. No. 10/626,730
 Amtd. Dated Sept. 29, 2005
 Reply to Office Action of June 29, 2005

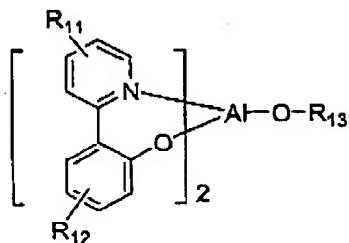
an organic enhancement layer disposed between the first organic layer and the cathode, wherein the organic enhancement layer is in physical contact with the first organic layer, and wherein the organic enhancement layer comprises a material of Formula IX having the structure:



IX

wherein R₁₁ and R₁₂ are substituents, each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF₃, C_nF_{2n+1}, perfluoroalkyl, trifluorovinyl, CO₂R₁, C(O)R₁, NR₁R₂, NO₂, OR₁, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group, wherein each of R₁ and R₂ is independently selected from the group consisting of hydrogen, alkyl, alkylaryl and aryl.

13. (Currently amended) The device of claim 13, wherein the organic enhancement layer comprises a material of Formula X having the structure:



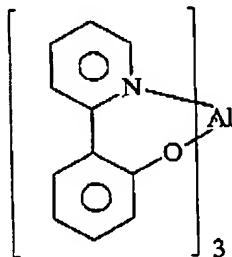
X

wherein R₁₁, R₁₂ and R₁₃ are substituents, each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, CF₃, C_nF_{2n+1}, perfluoroalkyl,

Appl. No. 10/626,730
Amtd. Dated Sept. 29, 2005
Reply to Office Action of June 29, 2005

trifluorovinyl, CO_2R_1 , $\text{C}(\text{O})\text{R}_1$, NR_1R_2 , NO_2 , OR_1 , halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group, wherein each of R_1 and R_2 is independently selected from the group consisting of hydrogen, alkyl, alkylaryl and aryl.

14. (Currently amended) The device of claim 13, wherein the organic enhancement layer comprises a material of Formula XI having the structure:



XI.

15. (Currently amended) The device of claim 13, wherein the material of Formula I-V has a glass transition temperature of at least about 95°C.

16. (Currently amended) The device of claim 14, wherein the material of Formula I-XI has a glass transition temperature of at least about 108°C.

17. (Currently amended) The device of claim 13, wherein the material of Formula I-V present in the device has a fluorescence peak at less than about 450 nm.

18. (Currently amended) The device of claim 14, wherein the material of Formula I-XI present in the device has a fluorescence peak at less than about 430 nm.

19. (Cancelled)

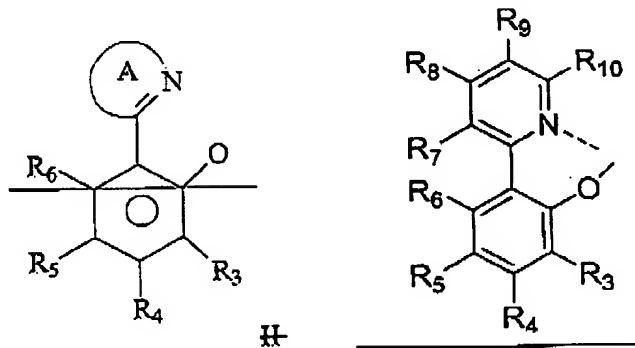
20. (Cancelled)

Appl. No. 10/626,730
Amdt. Dated Sept. 29, 2005
Reply to Office Action of June 29, 2005

21. (Currently amended) The device of claim 13, wherein the organic enhancement layer is in direct physical contact with the cathode.
22. (Currently amended) The device of claim 13, further comprising an additional organic layer disposed between the organic enhancement layer and the cathode.
23. (Currently amended) The device of claim 13, wherein the first organic layer comprises a hole transporting material.
24. (Currently amended) The device of claim 23, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is not more than 0.3 eV less than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.
25. (Currently amended) The device of claim 24, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is not more than 0.15 eV less than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.
26. (Currently amended) The device of claim 23, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is greater than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.
27. (Currently amended) A device, comprising:
 - an anode;
 - a cathode;
 - a first organic layer disposed between the anode and the cathode, wherein the first organic layer produces phosphorescent emission when a voltage is applied between the anode and the cathode; and

Appl. No. 10/626,730
 Amdt. Dated Sept. 29, 2005
 Reply to Office Action of June 29, 2005

an organic enhancement layer disposed between the first organic layer and the cathode, wherein the organic enhancement layer is in direct physical contact with the first organic layer, and wherein the organic enhancement layer comprises a material which comprises a ligand having the structure (II):



wherein

the ligand is attached to a metal M, such that the resulting material has (i) an oxygen-metal bond and (ii) the nitrogen of ring A is coordinated to the metal;

wherein R₃-R₆-R₁₀ are substituents, each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl CF₃-C_nF_{2n+1}, trifluorovinyl, CO₂R₁, C(O)R₁, NR₁R₂, NO₂, OR₁, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group, wherein each of R₁ and R₂ is independently selected from the group consisting of hydrogen, alkyl, alkylaryl and aryl; and,

additionally or alternatively, any one or more of R₇ and R₈, R₈ and R₉, or R₉ and R₁₀, together form independently a fused aromatic ring.

ring A is an aromatic heterocyclic or a fused aromatic heterocyclic ring with at least one nitrogen atom that is coordinated to the metal M, wherein the ring can be optionally substituted.

28. (Cancelled)

Appl. No. 10/626,730
Amdt. Dated Sept. 29, 2005
Reply to Office Action of June 29, 2005

29. (Cancelled)

30. (Original) The device of claim 27, wherein M is selected from the group consisting of aluminum, gallium, magnesium, zinc, copper and lead.

31. (Original) The device of claim 30, wherein M is aluminum.

32. (Original) The device of claim 27, wherein R₃, R₄, R₅ and R₆ are each hydrogen.

33. (Cancelled)

34. (Original) The device of claim 27, wherein the first organic layer comprises a hole transporting material.

35. (Currently amended) The device of claim 34, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is not more than 0.3 eV less than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.

36. (Currently amended) The device of claim 35, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is not more than 0.15 eV less than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.

37. (Currently amended) The device of claim 34, wherein the organic enhancement material comprises a material having a lowest unoccupied molecular orbital energy level that is greater than the energy level of the lowest unoccupied molecular orbital of the hole transporting material in the first organic layer.

Appl. No. 10/626,730
 Amdt. Dated Sept. 29, 2005
 Reply to Office Action of June 29, 2005

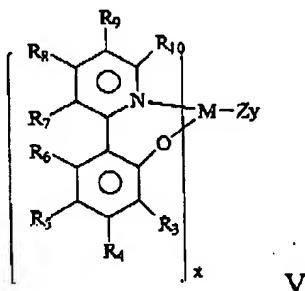
38. (NEW) A device comprising,

an anode;

a cathode;

a first organic layer disposed between the anode and the cathode, wherein the first organic layer produces phosphorescent emission when a voltage is applied between the anode and the cathode; and

an organic enhancement layer disposed between the first organic layer and the cathode, wherein the organic enhancement layer is in physical contact with the first organic layer, and wherein the organic enhancement layer comprises a material of Formula V having the structure:



wherein

M is a metal;

R₃-R₁₀ are substituents, each independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, alkylaryl, CN, perfluoroalkyl, trifluorovinyl, CO₂R₁, C(O)R₁, NR₁R₂, NO₂, OR₁, halo, aryl, heteroaryl, substituted aryl, substituted heteroaryl or a heterocyclic group, wherein each of R₁ and R₂ is independently selected from the group consisting of hydrogen, alkyl, alkylaryl and aryl;

additionally or alternatively, any two substituents may join together to form a ring;

each Z may be the same or different, and is an ancillary ligand;

x is a value from 1 to the maximum number of ligands that may be attached to the metal; and

x+y is less than or equal to the maximum number of ligands that may be attached to the metal.